```
                        title   'SAVE.RSX - CP/M 3.0 save routine,  July 1982'
                ;       **************************************************
                ;       *
                ;       *       Title:  SAVE.RSX        Resident System eXtension
                ;       *       Date:   7/28/82
                ;       *       Author: Thomas J. Mason
                ;       *
                ;       *       Modified:
                ;       *       11/30/82 - Thomas J. Mason
                ;       *       Added trap for function 60 to fix PUT and SAVE
                ;       *       bios vector mods.
                ;       *
                ;       **************************************************
                ;
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                ;       PO Box  579
                ;       Pacific Grove, Ca.  93950
                ;
FFFF =          TRUE    equ     0FFFFh
0000 =          FALSE   equ     not TRUE
                ;
                ; BIOS and BDOS Jump vectors
                ;
0000 =          WBOOT   equ     0
0001 =          WBTADR  equ     1       ;address of boot in BIOS
0005 =          BDOS    equ     5       ;BDOS jump vector
0006 =          BDOSAD  equ     6       ;location of instructions
005C =          DFCB    equ     05Ch    ;default FCB
                ;
                ; BDOS Function calls
                ;
0006 =          BDOSAD  equ     6               ;BDOS jump address
0009 =          PSTRING         equ     9               ;print string
000A =          BUFIN   equ     10              ;console buffer input
0010 =          CFILE   equ     16              ;file close
0013 =          DFILE   equ     19              ;file delete
0015 =          WFILE   equ     21              ;file write
0016 =          MFILE   equ     22              ;make file
001A =          SETDMA  equ     26              ;set DMA function
002D =          BDOSER  equ     45              ;Set BDOS error mode
0031 =          GETSCB  equ     49              ;get/set scb func #
003B =          LDRSX   equ     59              ;function for RSX load
003C =          CALRSX  equ     60              ;call rsx func #
006D =          CONMOD  equ     109             ;GET/SET Console Mode
                ;
                ; Non Printable ASCII characters
                ;
0003 =          CTL$C   equ     03      ;CONTROL-C
000D =          CR      equ     13      ;ASCII Carrige Return
000A =          LF      equ     10      ;ASCII Line Feed
                ;
001E =          VERSION         equ     30
                ;
                ; Buffer size
                ;
```

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```
 57  000D =          CONMAX equ     13      ;console buffer maximum
 58  0010 =          STKSZE equ     010h    ;size fo stack
 59  0068 =          SCBOST equ     068h    ;page boundary + to jmp instr
 60  00FE =          RETDSP equ     0FEh    ;RETurn and DiSPlay mode
 61  00C3 =          JUMP   equ     0C3h    ;opcode for jump
 62  0021 =          LXIH   equ     21h     ;lxi instr to poke
 63  007F =          BSNLY  equ     07Fh    ;restore bios jump table only
 64  00F9 =          CMMON  equ     0F9h    ;offset of common memory base from pg. bound
 65                  ;
 66                  ;       **********************************
 67                  ;       *                                *
 68                  ;       *       The Save Program         *
 69                  ;       *                                *
 70                  ;       **********************************
 71                  ;
 72  0000 0000000000         db      0,0,0,0,0,0
 73  0006 C31B00             jmp     PREFIX
 74                  NEXTJ:
 75  0009 C3                 db      JUMP            ;jump
 76                  NEXT:
 77  000A 0000               db      0,0             ;next module in line
 78                  PREV:
 79  000C 0500               dw      5               ;previous, initialized to 5
 80  000E 00         STKYBT:         db      00h             ;for warm start
 81  000F 00                 db      0
 82  0010 5341564520         db      'SAVE   '
 83  0018                    ds      3
 84                  ;
 85                  ;
 86                  ; This is the check performed every time the BDOS is
 87                  ; called to see if the RSX is to be invoked
 88                  ;
 89                  PREFIX:
 90  001B 79                 mov     a,c     ;set up for compare
 91  001C FE3C               cpi     CALRSX
 92  001E C23100             jnz     GETGOING
 93
 94  0021 C5                 push    b
 95  0022 D5                 push    d
 96  0023 E5                 push    h
 97  0024 210000             lxi     h,0000h         ;zero out HL
 98  0027 19                 dad     d               ; <HL> -> RSXPB
 99  0028 7E                 mov     a,m             ;get the byte
100  0029 FEA0               cpi     160             ; sub function defined
101
102  002B E1                 pop     h
103  002C D1                 pop     d
104  002D C1                 pop     b
105  002E CA8B01             jz      GOODBYE         ;remove this RSX
106
107                 GETGOING:
108                 ;
109  0031 FE3B               cpi     LDRSX   ;do the compare
110  0033 CA3A00             jz      START
111  0036 2A0A00             lhld    NEXT            ;get address for continue
112  0039 E9                 pchl                    ;get going.....
```

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```
                        ;
                        ;
                        ;
                        START:
                        ;
                        ; They are equal so get the BIOS address to point here
                        ; in case of a Func 0 call
                        ;
003A C5                 push    b               ;save state
003B D5                 push    d               ; of registers
                        ;
                        ; check for jump byte before the SCB
003C CDA901             call    GETSET$SCB
003F 22C203             shld    SCBADR          ;save address for later
                        ;
0042 2EFA               mvi     l,CMMON+1       ;offset into scb to check BIOS
0044 7E                 mov     a,m             ;get byte
0045 B7                 ora     a               ;check for zero
0046 3E00               mvi     a,FALSE         ;store for insurance
0048 32C103             sta     CHGJMP          ;non-banked = FALSE
004B CA6000             jz      NBNKED          ;high byte zero if non-banked
                        ;
004E 2AC203             lhld    SCBADR          ;restor SCB
0051 2E68               mvi     l,SCBOST        ;offset from page for instr
0053 7E                 mov     a,m             ;get byte
0054 FEC3               cpi     JUMP            ;is it a jump?
0056 C26000             jnz     MORRSX          ;we are not alone
0059 3EFF               mvi     a,TRUE
005B 32C103             sta     CHGJMP          ;set flag
005E 3621               mvi     m,LXIH          ;put in lxi h,xxxx mnemonic
                        ;
                        MORRSX:
                        ;       continue with processing
                        NBNKED:
                        ;
                        ;
0060 2A0100             lhld    WBTADR          ;get address at 01h
0063 23                 inx     h               ;now points to address of jmp xxxx
0064 7E                 mov     a,m             ;get low order byte
0065 32BA03             sta     BIOSAD
0068 23                 inx     h               ;next byte
0069 7E                 mov     a,m
006A 32BB03             sta     BIOSAD+1        ;high order byte
                        ;
                        ; Now poke the BIOS address to point to
                        ; the save routine.
                        ;
006D 118000             lxi     d,BEGIN         ;begining of routine
0070 72                 mov     m,d
0071 2B                 dcx     h               ;point back to first byte
0072 73                 mov     m,e             ;low order
                        ;
0073 0E2D               mvi     c,RDOSER        ;now set BDOS errormode
0075 1EFE               mvi     e,RETDSP        ;to trap any hard
0077 CD0500             call    BDOS            ;errors
                        ;
```

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```
                        ;
007A D1                 pop     d
007B C1                 pop     b
007C 2A0A00             lhld    NEXT
007F E9                 pchl                    ;continue on
                        ;
                        BEGIN:
                        ; Start of the save routine
                        ; Notify the user which program is running
                        ;
0080 31AD04             lxi     sp,STACK        ;initialize stack
0083 11D403             lxi     d,SIGNON        ;prompt
0086 CDE901             call    PSTR
                        ;
                        ; Get the file from the user
                        ;
                        FLEGET:
0089 11F003             lxi     d,FLEPRMPT      ;ask for file name
008C CDE901             call    PSTR
008F CDDA01             call    GETBUF
                        ; zero at end of string for parser
0092 21C603             lxi     h,CONBUF-1      ;address of #
0095 7E                 mov     a,m             ;get it
0096 FE00               cpi     0
0098 CA8001             jz      REPLCE
009B 23                 inx     h               ;HL->CONBUF
009C 1600               mvi     d,0             ;zero out high order
009E 5F                 mov     e,a             ;fill low
009F 19                 dad     d               ;add to h
00A0 3600               mvi     m,00            ;zero out byte for parse
00A2 E5                 push    h
                        ;
                        ;
00A3 CDEF01             call    PARSE
00A6 7C                 mov     a,h
00A7 FEFF               cpi     0FFh
00A9 CA8900             jz      FLEGET
                        ;
00AC E1                 pop     h               ;get end of string address back
00AD 23                 inx     h
00AE 363F               mvi     m,'?'           ;put in question mark
00B0 23                 inx     h               ;bump
00B1 3620               mvi     m,' '           ;blank in string
00B3 23                 inx     h               ;bump
00B4 3624               mvi     m,'$'           ;end of string
                        ;
00B6 0E11               mvi     c,17            ;Search for first
00B8 115C00             lxi     d,DFCB
00BB CD0500             call    BDOS            ;find it
00BE 3C                 inr     a               ;bump Acc
00BF CAD900             jz      FLECLR          ;file no present skip prompt
                        ;
00C2 111504             lxi     d,DELFLE
00C5 CDE901             call    PSTR            ;print out delete prompt
00C8 11C703             lxi     d,CONBUF        ;buffer address
00CB CDE901             call    PSTR            ;print out filename
```

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```
00CE CDDA01          call    GETBUF          ;get answer
00D1 CD3803          call    GNC             ;get the next char
00D4 FE59            cpi     'Y'             ;is it yes
00D6 C28900          jnz     FLEGET          ;another name if not
                     ;
                     ; Delete any existing file, then make a new one
                     FLECLR:
00D9 0E13            mvi     c,DFILE         ;file delete func
00DB 115C00          lxi     d,DFCB          ;default FCB
00DE CD0500          call    BDOS            ;real BDOS call
                     ;
00E1 3E00            mvi     a,0
00E3 217C00          lxi     h,07ch          ;M -> record count in FCB
00E6 77              mov     m,a             ;zero out record count
                     ;
00E7 0E16            mvi     c,MFILE         ;make file function
00E9 115C00          lxi     d,DFCB          ;default FCB
00EC CD0500          call    BDOS
                     ; Get the address of start of write
                     ;
                     STRADD:
00EF 111F04          lxi     d,SPRMPT        ;first address
00F2 CDE901          call    PSTR
00F5 CDDA01          call    GETBUF
                     ;
00F8 3AC603          lda     BUFFER+1        ;get # of chars read
00FB FE00            cpi     0
00FD CAEF00          jz      STRADD
                     ;
0100 CD5603          call    SCANAD          ;get address
0103 DAEF00          jc      STRADD
                     ;
0106 22B603          shld    SADDR           ;store in SADDR
                     ;
                     ; Get the finish address
                     ENDADD:
0109 113804          lxi     d,FPRMPT        ;load prompt
010C CDE901          call    PSTR            ;print
010F CDDA01          call    GETBUF          ;read in
                     ;
0112 3AC603          lda     BUFFER+1
0115 FE00            cpi     0
0117 CA0901          jz      ENDADD
                     ;
011A CD5603          call    SCANAD          ;get finish address
011D DA0901          jc      ENDADD
                     ;
0120 22B803          shld    FADDR           ;store it
0123 EB              xchg
0124 2AB603          lhld    SADDR
0127 EB              xchg
                     ;
0128 CDCF01          call    CHECK
012B DAEF00          jc      STRADD
                     ;
                     ;
```

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```
  281  012E 2AB603        lhld    SADDR           ;beginning DMA address
  282  0131 EB            xchg                    ;DE=DMA address
  283                     ;
  284                     ; Write the first record then check the beginning address
  285                     ; if DMA address ends up larger exit
  286                     ;
  287                     WLOOP:
  288  0132 CDB201        call    WFLAG
  289  0135 D5            push    d               ;save DMA address
  290  0136 0E1A          mvi     c,SETDMA
  291  0138 CD0500        call    BDOS            ;set DMA address
  292                     ;
  293  013B 0E15          mvi     c,WFILE
  294  013D 115C00        lxi     d,DFCB
  295  0140 CD0500        call    BDOS            ;write
  296                     ;
  297                     ; Check for directory space on disk for extents
  298  0143 116804        lxi     d,NODIR
  299  0146 FE01          cpi     01h             ;no more directory
  300  0148 CA7D01        jz      FINIS
  301                     ;
  302                     ; CHECK data block error
  303  014B 118504        lxi     d,NOBLK
  304  014E FE02          cpi     02h
  305  0150 CA7D01        jz      FINIS           ;out of disk space!
  306                     ; final check
  307  0153 B7            ora     a               ;if bad write occured...
  308  0154 C28001        jnz     REPLCE          ;restore BIOS address
  309                     ;
  310                     ; Write OK now check write address
  311  0157 D1            pop     d               ;get DMA address
  312  0158 218000        lxi     h,080h
  313  015B 19            dad     d
  314  015C EB            xchg
  315  015D 2AB803        lhld    FADDR           ;HL=end of write
  316                     ;
  317  0160 CDCF01        call    CHECK
  318                     ;
  319  0163 3ABE03        lda     ONEFLG
  320  0166 FEFF          cpi     TRUE
  321  0168 C23201        jnz     WLOOP           ;WLOOP if not done
  322                     ;
  323                     ; Else, Close file and print out ending prompt
  324                     CLOSE:
  325  016B 0E10          mvi     c,CFILE         ;close function
  326  016D 115C00        lxi     d,DFCB          ;get filename
  327  0170 CD0500        call    BDOS
  328                     ;
  329  0173 3C            inr     a               ;check for close error
  330  0174 115404        lxi     d,CERROR
  331  0177 CA7D01        jz      FINIS           ;maybe write protected
  332                     ;
  333                     ;good copy
  334  017A 115104        lxi     d,ENDMSG
  335                     FINIS:
  336  017D CDE901        call    PSTR
```

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```
                        ;
                        ; Replace the BIOS Address to correct one
                        REPLCE:
0180 2ABA03                 lhld    BIOSAD  ;HL=BIOS warm jump
0183 EB                     xchg            ;DE='    '    '
0184 2A0100                 lhld    WBTADR
0187 23                     inx     h
0188 73                     mov     m,e
0189 23                     inx     h
018A 72                     mov     m,d
                        ;
                        GOODBYE:
018B 3EFF                   mvi     a,0FFh
018D 320E00                 sta     STKYBT          ;change sticky byte for
                        ;                           ; removal of RSX
                        ;
                        ; check to see if JMP changed for BANKED system
0190 3AC103                 lda     CHGJMP
0193 FEFF                   cpi     TRUE            ;has it been done?
0195 C29F01                 jnz     CHGBIOS
0198 2AC203                 lhld    SCBADR          ;retreive SCB address
019B 2E68                   mvi     l,SCBOST        ;points to page + offset
019D 36C3                   mvi     m,JUMP          ;restore original code
                        ;
                        CHGBIOS:
019F 0E0D                   mvi     c,13            ;reset the disk system
01A1 CD0500                 call    BDOS
                        ;
01A4 0E00                   mvi     c,0             ;set up for wboot
01A6 CD0500                 call    BDOS
                        ;****************************************
                        ;*                                      *
                        ;*      Logical end of the program      *
                        ;*                                      *
                        ;****************************************
                        ;
                        GETSET$SCB:
01A9 0E31                   mvi     c,GETSCB
01AB 11B403                 lxi     d,SCBPB
01AE CD0500                 call    BDOS
01B1 C9                     ret
                        ;
                        WFLAG:
01B2 3E00                   mvi     a,FALSE
01B4 32BE03                 sta     ONEFLG
01B7 3AC003                 lda     RSLT+1
01BA FE00                   cpi     00h
01BC C0                     rnz
01BD 3ABF03                 lda     RSLT
01C0 FE80                   cpi     080h
01C2 DAC901                 jc      WFLAG1
01C5 CAC901                 jz      WFLAG1
01C8 C9                     ret
                        ;
                        WFLAG1:
01C9 3EFF                   mvi     a,TRUE
```

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```
 393  01CB 32BE03          sta     ONEFLG
 394  01CE C9              ret
 395                  ;
 396                  ;
 397                  ;
 398                  CHECK:
 399                  ; Subtract the two to find out if finished
 400  01CF 7D              mov     a,l             ;low order
 401  01D0 93              sub     e               ;subtraction
 402  01D1 32BF03          sta     RSLT
 403  01D4 7C              mov     a,h             ;now ...
 404  01D5 9A              sbb     d               ;high order subtraction
 405  01D6 32C003          sta     RSLT+1          ;saved
 406  01D9 C9              ret
 407                  ;
 408                  GETBUF:
 409                  ;buffer input routine
 410                  ;
 411  01DA 21C703          lxi     h,CONBUF        ;address of buffer
 412  01DD 22BC03          shld    NEXTCOM         ;store it
 413  01E0 0E0A            mvi     c,BUFIN
 414  01E2 11C503          lxi     d,BUFFER
 415  01E5 CD0500          call    BDOS
 416  01E8 C9              ret
 417                  ;
 418                  PSTR:
 419                  ; String output routine for messages
 420                  ;
 421  01E9 0E09            mvi     c,PSTRING
 422  01EB CD0500          call    BDOS
 423  01EE C9              ret
 424                  ;
 425                  PARSE:
 426                  ; General purpose parser
 427                  ;
 428                  ; Filename = [d:]file[.type][;password]
 429                  ;
 430                  ; FCB assignments
 431                  ;
 432                  ;       0       => drive, 0=default, 1=A, 2=B
 433                  ;       1-8     => file, converted to upper case,
 434                  ;                  padded with blanks
 435                  ;       9-11    => type, converted to upper case,
 436                  ;                  padded with blanks
 437                  ;       12-15   => set to zero
 438                  ;       16-23   => passwords, converted to upper case,
 439                  ;                  padded with blanks
 440                  ;       24-25   => address of password field in 'filename',
 441                  ;                  set to zero if password length=0.
 442                  ;       26      => length of password (0-8)
 443                  ;
 444                  ; Upon return, HL is set to FFFFh if BC locates
 445                  ;                  an invalid file name;
 446                  ; otherwise, HL is set to 0000h if the delimiter
 447                  ;                  following the file name is a 00h (null)
 448                  ;                  or a 0Dh (CR);
```

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```
                        ; otherwise, HL is set to the address of the delimiter
                        ;               following the file name.
                        ;
                        ;
01EF 210000             lxi     h,0
01F2 E5                 push    h
01F3 E5                 push    h
01F4 11C703             lxi     d,CONBUF        ;set up source address
01F7 215C00             lxi     h,DFCB          ;set up dest address
01FA CD2803             call    DEBLNK          ;scan the blanks
01FD CDE602             call    DELIM           ;check for delimeter
0200 C20C02             jnz     PARSE1
0203 79                 mov     a,c
0204 B7                 ora     a
0205 C28E02             jnz     PARSE9
0208 77                 mov     m,a
0209 C33D02             jmp     PARSE3
                        ;
                        PARSE1:
020C 47                 mov     b,a
020D 13                 inx     d
020E 1A                 ldax    d
020F FE3A               cpi     ':'
0211 C23A02             jnz     PARSE2
                        ;
0214 78                 mov     a,b
0215 D641               sui     'A'
0217 DA8E02             jc      PARSE9
021A FE10               cpi     16
021C D28E02             jnc     PARSE9
021F 3C                 inr     a
0220 77                 mov     m,a
0221 13                 inx     d
0222 CDE602             call    DELIM
0225 C23D02             jnz     PARSE3
0228 FE2E               cpi     '.'
022A CA8E02             jz      PARSE9
022D FE3A               cpi     ':'
022F CA8E02             jz      PARSE9
0232 FE3B               cpi     ';'
0234 CA8E02             jz      PARSE9
0237 C33D02             jmp     PARSE3
                        ;
                        PARSE2:
023A 1B                 dcx     d
023B 3600               mvi     m,0
                        PARSE3:
023D 0608               mvi     b,8
023F CD940?             call    SETFLD
0242 0603               mvi     b,3
0244 FE2E               cpi     '.'
0246 CA4F02             jz      PARSE4
0249 CDDE02             call    PADFLD
024C C35302             jmp     PARSE5
                        ;
                        PARSE4:
```

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```
 505  024F 13          inx   d
 506  0250 CD9402      call  SETFLD
 507                   PARSE5:
 508  0253 0604        mvi   b,4
 509                   PARSE6:
 510  0255 23          inx   h
 511  0256 3600        mvi   m,0
 512  0258 05          dcr   b
 513  0259 C25502      jnz   PARSE6
 514  025C 0608        mvi   b,8
 515  025E FE3B        cpi   ';'
 516  0260 CA6902      jz    PARSE7
 517  0263 CDDE02      call  PADFLD
 518  0266 C36D02      jmp   PARSE8
 519                   PARSE7:
 520  0269 13          inx   d
 521  026A CDB702      call  PWFLD
 522                   PARSE8:
 523  026D D5          push  d
 524  026E CD2B03      call  DEBLNK
 525  0271 CDE602      call  DELIM
 526  0274 C27C02      jnz   PARSE81
 527  0277 33          inx   sp
 528  0278 33          inx   sp
 529  0279 C37D02      jmp   PARSE82
 530                   PARSE81:
 531  027C D1          pop   d
 532                   PARSE82:
 533  027D 79          mov   a,c
 534  027E B7          ora   a
 535  027F C1          pop   b
 536  0280 79          mov   a,c
 537  0281 C1          pop   b
 538  0282 23          inx   h
 539  0283 71          mov   m,c
 540  0284 23          inx   h
 541  0285 70          mov   m,b
 542  0286 23          inx   h
 543  0287 77          mov   m,a
 544  0288 EB          xchg
 545  0289 C0          rnz
 546  028A 210000      lxi   h,0
 547  028D C9          ret
 548                   PARSE9:
 549  028E E1          pop   h
 550  028F E1          pop   h
 551  0290 21FFFF      lxi   h,0FFFFh
 552  0293 C9          ret
 553                   ;
 554                   SETFLD:
 555  0294 CDE602      call  DELIM
 556  0297 CADE02      jz    PADFLD
 557  029A 23          inx   h
 558  029B FE2A        cpi   '*'
 559  029D C2A902      jnz   SETFD1
 560  02A0 363F        mvi   m,'?'
```

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```
02A2 05          dcr   b
02A3 C29402      jnz   SETFLD
02A6 C3AB02      jmp   SETFD2
                 SETFD1:
02A9 77          mov   m,a
02AA 05          dcr   b
                 SETFD2:
02AB 13          inx   d
02AC C29402      jnz   SETFLD
                 SETFD3:
02AF CDE602      call  DELIM
02B2 C8          rz
02B3 E1          pop   h
02B4 C38E02      jmp   PARSE9
                 ;
                 PWFLD:
02B7 CDE602      call  DELIM
02BA CADE02      jz    PADFLD
02BD 33          inx   sp
02BE 33          inx   sp
02BF 33          inx   sp
02C0 33          inx   sp
02C1 33          inx   sp
02C2 33          inx   sp
02C3 D5          push  d
02C4 E5          push  h
02C5 2E00        mvi   l,0
02C7 E3          xthl
02C8 3B          dcx   sp
02C9 3B          dcx   sp
                 PWFLD1:
02CA 33          inx   sp
02CB 33          inx   sp
02CC E3          xthl
02CD 2C          inr   l
02CE E3          xthl
02CF 3B          dcx   sp
02D0 3B          dcx   sp
02D1 23          inx   h
02D2 77          mov   m,a
02D3 13          inx   d
02D4 05          dcr   b
02D5 CAAF02      jz    SETFD3
02D8 CDE602      call  DELIM
02DB C2CA02      jnz   PWFLD1
                 ;
                 PADFLD:
02DE 23          inx   h
02DF 3620        mvi   m,' '
02E1 05          dcr   b
02E2 C2DE02      jnz   PADFLD
02E5 C9          ret
                 ;
                 DELIM:
02E6 1A          ldax  d
02E7 4F          mov   c,a
```

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```
 617  02E8 B7          ora   a
 618  02E9 C8          rz
 619  02EA 0E00        mvi   c,0
 620  02EC FE0D        cpi   0Dh
 621  02EE C8          rz
 622  02EF 4F          mov   c,a
 623  02F0 FE09        cpi   09h
 624  02F2 C8          rz
 625  02F3 FE20        cpi   ' '
 626  02F5 DA2403      jc    DELIM2
 627  02F8 C8          rz
 628  02F9 FE2E        cpi   '.'
 629  02FB C8          rz
 630  02FC FE3A        cpi   ':'
 631  02FE C8          rz
 632  02FF FE3B        cpi   ';'
 633  0301 C8          rz
 634  0302 FE3D        cpi   '='
 635  0304 C8          rz
 636  0305 FE2C        cpi   ','
 637  0307 C8          rz
 638  0308 FE2F        cpi   '/'
 639  030A C8          rz
 640  030B FE5B        cpi   '['
 641  030D C8          rz
 642  030E FE5D        cpi   ']'
 643  0310 C8          rz
 644  0311 FE3C        cpi   '<'
 645  0313 C8          rz
 646  0314 FE3E        cpi   '>'
 647  0316 C8          rz
 648  0317 FE61        cpi   'a'
 649  0319 D8          rc
 650  031A FE7B        cpi   'z'+1
 651  031C D22103      jnc   DELIM1
 652  031F E65F        ani   05Fh
 653               DELIM1:
 654  0321 E67F        ani   07Fh
 655  0323 C9          ret
 656               DELIM2:
 657  0324 E1          pop   h
 658  0325 C38E02      jmp   PARSE9
 659               ;
 660               DEBLNK:
 661  0328 1A          ldax  d
 662  0329 FE20        cpi   ' '
 663  032B CA3403      jz    DBLNK1
 664  032E FE09        cpi   09h
 665  0330 CA3403      jz    DBLNK1
 666  0333 C9          ret
 667               DBLNK1:
 668  0334 13          inx   d
 669  0335 C32803      jmp   DEBLNK
 670               ; End of the Parser
 671               ;
 672               ; GET a character from the console buffer
```

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```
                        GNC:
0338 E5                 push    h
0339 21C603             lxi     h,CONBUF-1      ;get length
033C 7E                 mov     a,m
033D B7                 ora     a               ;zero?
033E 3E0D               mvi     a,CR            ;return with CR if so
0340 CA4C03             jz      GNCRET
0343 35                 dcr     m               ;lenght = length-1
0344 2ABC03             lhld    NEXTCOM         ;next char address
0347 7E                 mov     a,m
0348 23                 inx     h               ;bump to next
0349 22BC03             shld    NEXTCOM         ;update
                        GNCRET:
034C E1                 pop     h
                        TRANS:
034D FE7F               cpi     7Fh             ;Rubout?
034F C8                 rz
0350 FE61               cpi     ('A' or 0100000b)
0352 D8                 rc
0353 E65F               ani     1011111b        ; clear upper case bit
0355 C9                 ret
                        ;
                        ;
                        ; Scan the buffer for the address read in ASCII from the terminal
                        ;
                        SCANAD:
0356 110000             lxi     d,00h           ;zero out address
0359 D5                 push    d               ;and save
                        ;
035A 3AC603             lda     CONBUF-1        ;get character count
035D FE05               cpi     05              ;5 is too many
035F DA6603             jc      SCAN0
0362 37                 stc                     ;set carry for routine
0363 C3B103             jmp     SCNRET
                        SCAN0:
0366 CD3B03             call    GNC             ;get a char
0369 FE0D               cpi     CR              ;end?
036B CAB103             jz      SCNRET          ;to scnret if so
036E FE30               cpi     '0'             ;is it >0?
0370 D27603             jnc     SCAN01          ;bad character
0373 C3B103             jmp     SCNRET
                        SCAN01:
0376 FE40               cpi     '@'
0378 C27F03             jnz     SCAN02          ;bad character
037B 37                 stc
037C C3B103             jmp     SCNRET          ;return on bad file
                        SCAN02:
037F D28703             jnc     SCAN1           ;must be A-F
0382 D630               sui     030h            ;normalize 0-9
0384 C39203             jmp     SCAN2
                        SCAN1:
0387 FE47               cpi     'G'             ;is it out of range?
0389 DA9003             jc      SCAN11
038C 37                 stc
038D C3B103             jmp     SCNRET
                        SCAN11:
```

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```
 729  0390 D637          sui   037h          ;normalize
 730                SCAN2:
 731  0392 6F            mov   l,a           ;character in low of DE
 732  0393 3AC603        lda   CONBUF-1      ;get # left
 733  0396 C601          adi   1             ;readjust
 734  0398 4F            mov   c,a
 735  0399 2600          mvi   h,00          ;zero out high order
 736                SCAN3:
 737  039B 0D            dcr   c             ;dec to set flag
 738  039C CAA603        jz    SCAN4         ;were done
 739  039F 29            dad   h             ;shift 1bit left
 740  03A0 29            dad   h             ;same
 741  03A1 29            dad   h             ;same
 742  03A2 29            dad   h             ;finally
 743  03A3 C39B03        jmp   SCAN3         ;back for more
 744                ;
 745                SCAN4:
 746  03A6 D1            pop   d             ;ready for or
 747  03A7 7A            mov   a,d           ;high order
 748  03A8 B4            ora   h             ;
 749  03A9 57            mov   d,a
 750  03AA 7B            mov   a,e           ;low order
 751  03AB B5            ora   l             ;ORed
 752  03AC 5F            mov   e,a           ;back
 753  03AD D5            push  d             ;save
 754  03AE C36603        jmp   SCAN0         ;get more characters
 755                SCNRET:
 756  03B1 D1            pop   d             ;hl = address
 757  03B2 EB            xchg                ;DE->HL
 758  03B3 C9            ret
 759                ;
 760                ;
 761                ;     **********************************
 762                ;     *                                *
 763                ;     *      Data Structures           *
 764                ;     *                                *
 765                ;     **********************************
 766                ;
 767                SCBPB:
 768  03B4 3A            db    03Ah    ;SCB address
 769  03B5 00            db    0
 770                ;
 771  03B6 0000     SADDR: dw    0           ;write start address
 772  03B8 0000     FADDR: dw    0           ;write finish address
 773  03BA 0000     BIOSAD:      dw    0           ;WarmBOOT bios address
 774  03BC 0000     NEXTCOM: dw  0           ;address of next character to read
 775  03BE 00       ONEFLG:      db    0
 776  03BF 0000     RSLT:  dw    0
 777  03C1 00       CHGJMP db    FALSE
 778                ;
 779  03C2 0000     SCBADR:      dw    0           ;Scb address
 780                ;
 781  03C4 00       BIOSMD:      db    0           ;if non-zero change LXI @jmpadr to
 782                                               ;JUMP when removed.
 783                ;
 784  03C5 0D       BUFFER:      db    CONMAX
```

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```
03C6 00             db      0               ;# of console characters read
03C7            CONBUF: ds      CONMAX
                ;
03D4 0D0A43502FSIGNON:  db      CR,LF,'CP/M 3 SAVE - Version ',VERSION/10+'0','.',VERSION mod 10+'0','$'
03F0 0D0A456E74FLEPRMPT: db     CR,LF,'Enter file '
03FD 2874797065     db      '(type RETURN to exit): $'
0415 0D0A44656CDELFLE:  db      CR,LF,'Delete $'
041F 0D0A4265679SPRMPT:  db     CR,LF,'Beginning hex address $'
0438 0D0A456E64FPRMPT:  db      CR,LF,'Ending hex address    $'
0451 0D0A24     ENDMSG: db      CR,LF,'$'
                ;
                ; Error messages......
0454 0D0A455252CERROR:  db      CR,LF,'ERROR: Bad close.$'
0468 0D0A455252NODIR: db        CR,LF,'ERROR: No directory space.$'
0485 0D0A455252NOBLK: db        CR,LF,'ERROR: No disk space.$'
                ;
                ; Stack for program
049D                ds      STKSZE
                STACK:
04AD                end             ;Physical end of program
```

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```
BDOS            0005   27#  167  217  234  242  291  293  327  363  366
                       376  415  422
BDOSAD          0006   28#  33#
BDOSER          002D   41#  165
BEGIN           0080   160  175#
BIOSAD          03BA   152  155  340  773#
BIOSMD          03C4   781#
BSNLY           007F   63#
BUFFER          03C5   250  265  414  784#
BUFIN           000A   35#  413
CALRSX          003C   44#   91
CERROR          0454   330  797#
CFILE           0010   36#  325
CHECK           01CF   277  317  398#
CHGBIOS         019F   356  361#
CHGJMP          03C1   132  141  354  777#
CLOSE           016B   324#
CMMON           00F9   64#  128
CONBUF          03C7   190  223  411  456  675  702  732  786#
CONMAX          000D   57#  784  786
CONMOD          006D   45#
CR              000D   50#  678  709  788  789  791  792  793  794  797
                       798  799
CTLC            0003   49#
DBLNK1          0334   663  665  667#
DEBLNK          0328   458  524  660#  669
DELFLE          0415   221  791#
DELIM           02E6   459  482  525  555  571  577  604  614#
DELIM1          0321   651  653#
DELIM2          0324   626  656#
DFCB            005C   29#  216  233  241  294  326  457
DFILE           0013   37#  232
ENDADD          0109   260#  267  270
ENDMSG          0451   334  794#
FADDR           03B8   272  315  772#
FALSE           0000   21#  131  380  777
FINIS           017D   300  305  331  335#
FLECLR          00D9   219  231#
FLEGET          0089   185#  205  228
FLEPRMPT        03F0   186  789#
FPRMPT          0438   261  793#
GETBUF          01DA   188  225  248  263  408#
GETGOING        0031    92  107#
GETSCB          0031    42#  374
GETSETSCB       01A9   125  373#
GNC             0338   226  673#  708
GNCRET          034C   679  685#
GOODBYE         018B   105  348#
JUMP            00C3    61#   75  138  359
LDRSX           003B    43#  109
LF              000A    51#  788  789  791  792  793  794  797  798  799
LXIH            0021    62#  142
MFILE           0016    39#  240
MORRSX          0060   139  144#
NBNKED          0060   133  146#
NEXT            000A    76#  111  172
```

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```
NEXTCOM         03BC   412   681   684   774#
NEXTJ           0009    74#
NOBLK           0485   303   799#
NODIR           0468   298   798#
ONEFLG          03BE   319   381   393   775#
PADFLD          02DE   501   517   556   578   607#  611
PARSE           01EF   202   425#
PARSE1          020C   460   467#
PARSE2          023A   472   492#
PARSE3          023D   465   483   490   495#
PARSE4          024F   500   504#
PARSE5          0253   502   507#
PARSE6          0255   509#  513
PARSE7          0269   516   519#
PARSE8          026D   518   522#
PARSE81         027C   526   530#
PARSE82         027D   529   532#
PARSE9          028E   463   476   478   485   487   489   548#  574   658
PREFIX          001B    73    89#
PREV            000C    78#
PSTR            01E9   181   187   222   224   247   262   336   418#
PSTRING         0009    34#   421
PWFLD           02B7   521   576#
PWFLD1          02CA   591#  605
REPLCE          0180   193   308   339#
RETDSP          00FE    60#   166
RSLT            03BF   382   385   402   405   776#
SADDR           03B6   257   274   281   771#
SCAN0           0366   704   707#  754
SCAN01          0376   712   714#
SCAN02          037F   716   719#
SCAN1           0387   720   723#
SCAN11          0390   725   728#
SCAN2           0392   722   730#
SCAN3           039B   736#  743
SCAN4           03A6   738   745#
SCANAD          0356   254   269   698#
SCBADR          03C2   126   135   357   779#
SCBOST          0068    59#   136   358
SCBPB           03B4   375   767#
SCNRET          03B1   706   710   713   718   727   755#
SETDMA          001A    40#   290
SETFD1          02A9   559   564#
SETFD2          02AB   563   567#
SETFD3          02AF   570#  603
SETFLD          0294   497   506   554#  562   569
SIGNON          03D4   180   788#
SPRMPT          041F   246   792#
STACK           04AD   179   803#
START           003A   110   116#
STKSZE          0010    58#   802
STKYBT          000E    80#   350
STRADD          00EF   245#  252   255   278
TRANS           034D   687#
TRUE            FFFF    20#    21   140   320   355   392
VERSION         001E    53#   788   788
```

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WBOOT	0000	25#		
WBTADR	0001	26#	149	342
WFILE	0015	38#	293	
WFLAG	0182	288	379#	
WFLAG1	01C9	387	388	391#
WLOOP	0132	287#	321	

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